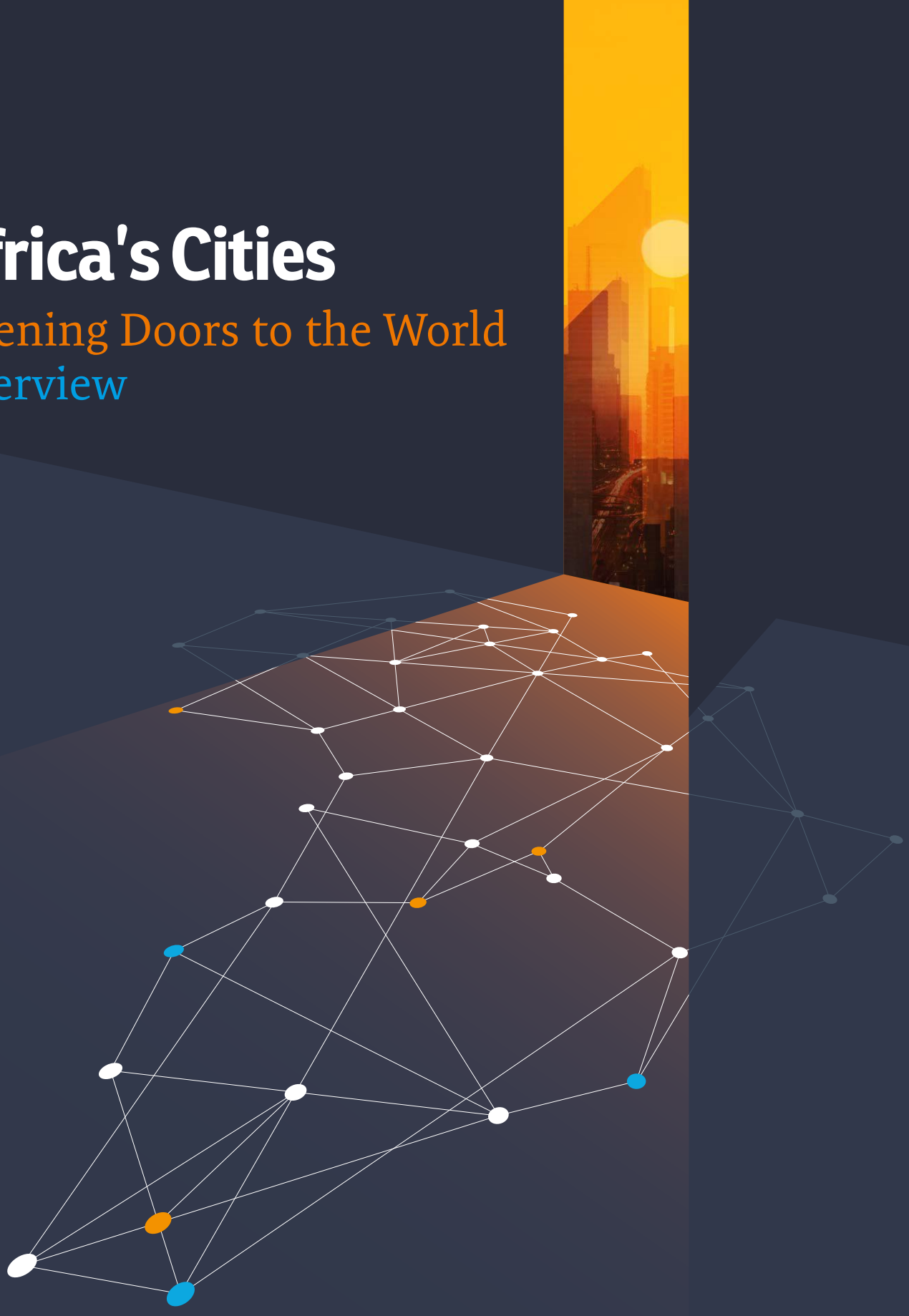
# Africa's Cities

## Opening Doors to the World

## Overview



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# Africa's Cities

## Opening Doors to the World
## Overview

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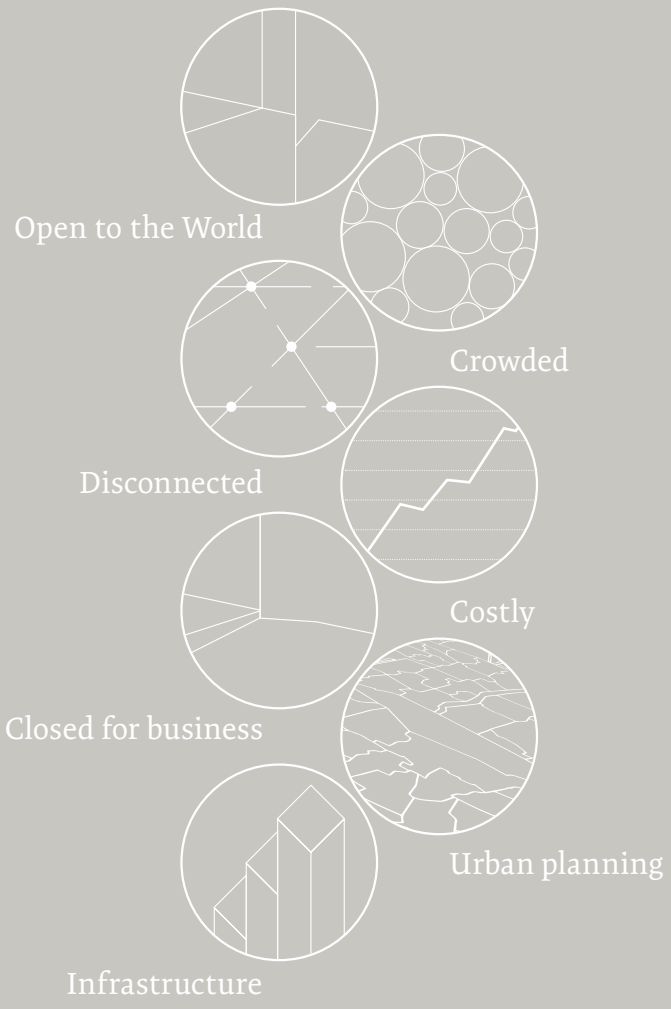



# Contents

# Overview
# Africa's Cities: Opening Doors to the World

# African cities are crowded, disconnected, and costly.

Typical African cities share three features that constrain urban development and create daily challenges for residents:

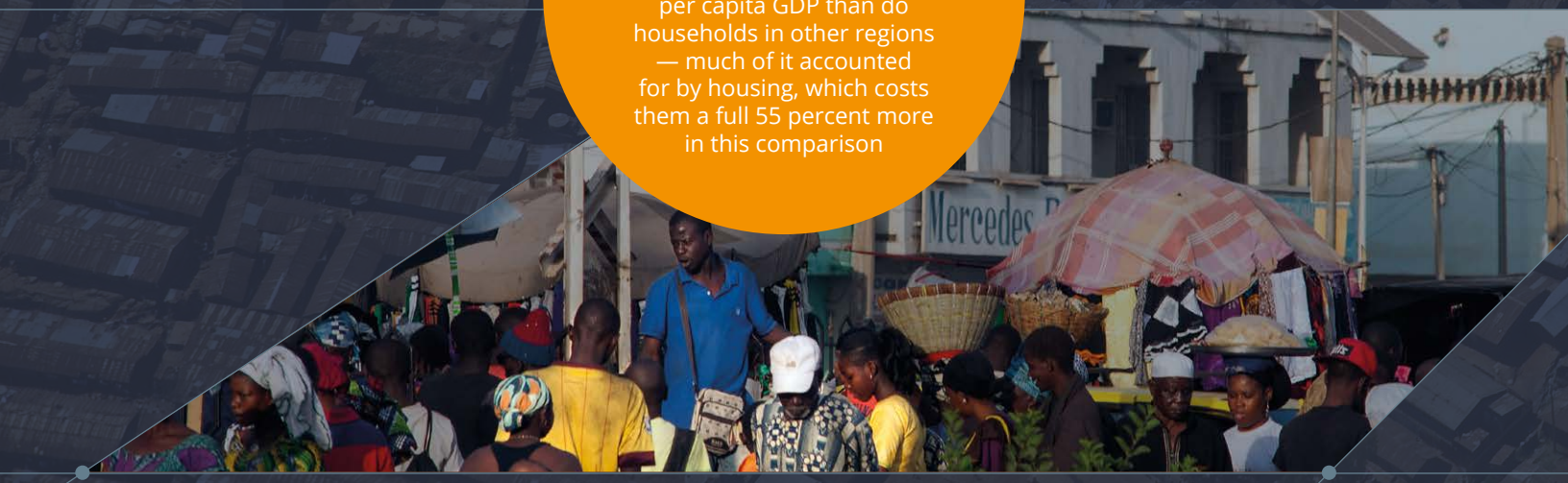
**Crowded**, not economically dense — investments in infrastructure, industrial and commercial structures have not kept pace with the concentration of people, nor have investments in affordable formal housing; congestion and its costs overwhelm the benefits of urban concentration.

**Disconnected** — cities have developed as collections of small and fragmented neighborhoods, lacking reliable transportation and limiting workers' job opportunities while preventing firms from reaping scale and agglomeration benefits.

**Costly** for households and for firms — high nominal wages and transaction costs deter investors and trading partners, especially in regionally and internationally tradable sectors; workers' high food, housing, and transport costs increase labor costs to firms and thus reduce expected returns on investment.

**55%**

African households face higher costs relative to their per capita GDP than do households in other regions — much of it accounted for by housing, which costs them a full 55 percent more in this comparison



In eight representative African cities, roads occupy far lower shares of urban land than in other cities around the world.

## 20%

African cities are 20 percent more fragmented than are Asian and Latin American ones.

In Harare, Zimbabwe, and Maputo, Mozambique, more than 30 percent of land within 5 kilometers of the central business district remains unbuilt.

## 472 million

Urban areas in Africa comprise 472 million people. That number will double over the next 25 years as more migrants are pushed to cities from the countryside. The largest cities grow as fast as 4 percent annually.

# Africa's Cities: Opening Doors to the World

Cities in Sub-Saharan Africa are experiencing rapid population growth. Yet their economic growth has not kept pace. Why? One factor might be low capital investment, due in part to Africa's relative poverty: Other regions have reached similar stages of urbanization at higher per capita GDP. This study, however, identifies a deeper reason: African cities are closed to the world. Compared with other developing cities, cities in Africa produce few goods and services for trade on regional and international markets (figure 1).

To grow economically as they are growing in size, Africa's cities must open their doors to the world. They need to specialize in manufacturing, along with other regionally and globally tradable goods and services. And to attract global investment in tradables production, cities must develop scale economies, which are associated with successful urban economic development in other regions.

Such scale economies can arise in Africa, and they will — if city and country leaders make concerted efforts to bring agglomeration effects to urban areas. Today, potential urban investors and entrepreneurs look at Africa and see crowded, disconnected, and costly cities. Such cities inspire low expectations for the scale of urban production and for returns on invested capital. How can these cities become economically dense — not merely crowded? How can they acquire efficient connections? And how can they draw firms and skilled workers with a more affordable, livable urban environment?

From a policy standpoint, the answer must be to address the structural problems affecting African cities. Foremost among these problems are institutional and regulatory constraints that misallocate land and labor, fragment physical development, and limit productivity. As long as African cities lack functioning land markets and regulations and early, coordinated infrastructure investments, they will remain local cities: closed to regional and global markets, trapped into producing only locally traded goods and services, and limited in their economic growth.

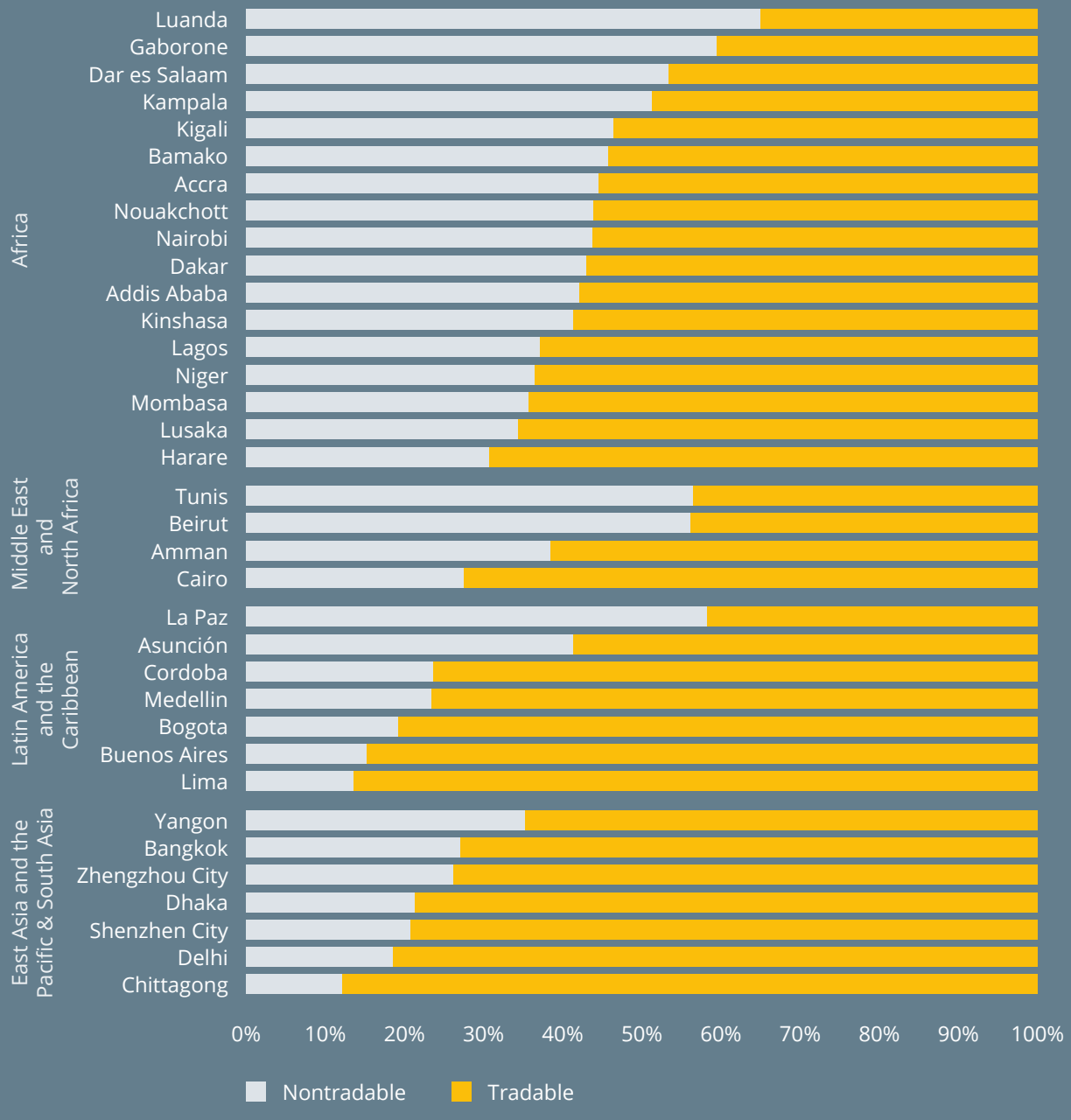
## The low development trap — Africa's urban economies are limited to nontradable goods and services

How does the production of locally consumed, or nontradable, goods and services trap cities into low economic growth? Put simply, producing for local markets limits returns to scale. The consumer base of one city, however large, is much smaller than a regional or global market. Specializing in nontradables for local consumption leads to diminishing returns (both for technological reasons, and because prices are set locally and decline as supply increases). In contrast, export markets are key to a dynamic industrial sector.

Since the 1980s, much of the growth in developing countries has depended on the expansion of exports through industrial production and higher technology. Unlike nontradables, tradable goods and services face elastic global demand. They may also allow for agglomeration economies, which increase returns to employment (box 1). Rapidly growing cities require growth in employment — and the returns to expanding employment are highest in tradable sectors.

FIGURE 1

## Share of firms in internationally traded and nontradable sectors, selected developing-country cities (latest post-2010 data)




Source: Calculation based on the World Bank Enterprise (WBE) surveys.

Note: The data is from the latest WBE surveys post-2010 (with more than 15,000 firms in capital cities, or cities of at least one million inhabitants, and with at least 50 firms sampled). Only firms with five or more employees are interviewed. The sectoral specialization analyses used the UN International Standard Industrial Classification of All Economic Activities (3.1 revision). Manufacturing, wholesale and commission trade, and business services (such as travel agencies, transport, financial intermediation) are all tradable activities. By contrast, construction, local services, retail trade, health and social work, and other local activities are classified as nontradable.

Because of manufacturing's importance in entering regional and global markets, one can look at the share of manufacturing in GDP to see whether an urbanizing economy is opening its doors to the world — or closing them. For example, we compare the structures of non-African and African economies during periods when the urbanized share of the population rises to 60 percent. Based on a cross-section of African and non-African economies, the comparison shows that Africa's cities are indeed trapped in the production of nontradables for local markets. As the African economies attain 60 percent urbanization, their share of manufacturing in GDP stays flat (or somewhat falling) at about 10 percent. In contrast, the manufacturing share of the non-African economies rises from 10 percent to nearly 20 percent (falling back only when urbanization exceeds 60 percent).

Why have African urban economies remained local? Two reasons stand out. One, paradoxically, is natural resource development. Such development can create a high demand for nontradable goods and services. As growth in the natural resource sector raises factor prices, this sector crowds out others — notably manufacturing (figure 2). Countries that depend heavily on natural resource exports tend to sprout urban economies dominated by nontradable services ("consumption cities"). This syndrome is known as Dutch Disease.

Another reason for Africa's local urban economies is related to urban form: how cities are built and spatially organized. The findings in this report draw on spatial and economic analysis based on 64 cities covering large, medium, and small cities across Africa and shows that cities are growing under a patchwork of constraints — inefficient land markets,



BOX 1

## The promise of cities: Agglomeration economies and returns to scale

What is an urban agglomeration economy, and how does it arise from economic density? A simple case is the reduction of transport costs for goods: When suppliers are close to their customers, shipping costs decline. In the late nineteenth century, four fifths of Chicago's jobs were compactly located within four miles of State and Madison Streets — near residences and infrastructure (Grover and Lall 2015). And in the early 1900s, New York and London were manufacturing powerhouses because factories were built there to access customers and transport services. Many agglomeration benefits increase with scale: Each doubling of city size increases productivity by 5 percent, and the elasticity of income with respect to city population is between 3 percent and 8 percent (Rosenthal and Strange 2004).

Productivity gains are closely linked to urbanization through their ties to structural transformation and industrialization. As countries urbanize, workers move from rural to urban areas in search of better paid and more productive jobs. Similarly, entrepreneurs locate their firms in cities where agglomeration economies will increase their productivity. Close spatial proximity has many benefits. Certain public goods — like infrastructure and basic services — are cheaper to provide when populations are large and densely packed together. Firms located near each other can share suppliers, lowering input costs. Thick labor markets reduce search costs, giving firms a larger pool of workers to choose from. And spatial proximity makes it easier for workers to share information and learn from each other. International evidence shows that knowledge spillovers play a key role in boosting the productivity of successful cities.

Evidence from East Asia (China, the Republic of Korea, Vietnam) points clearly to a close association between episodes of rapid urbanization and economic development. Unfortunately, these links appear weak in Sub-Saharan Africa. Cities in Africa are not delivering agglomeration economies or reaping urban productivity benefits; instead, they suffer from high costs for food, housing, and transport. These high costs — rising from coordination failures, poorly designed policies, weak property rights, and other factors that lower economic density — lock firms into producing nontradable goods and services.

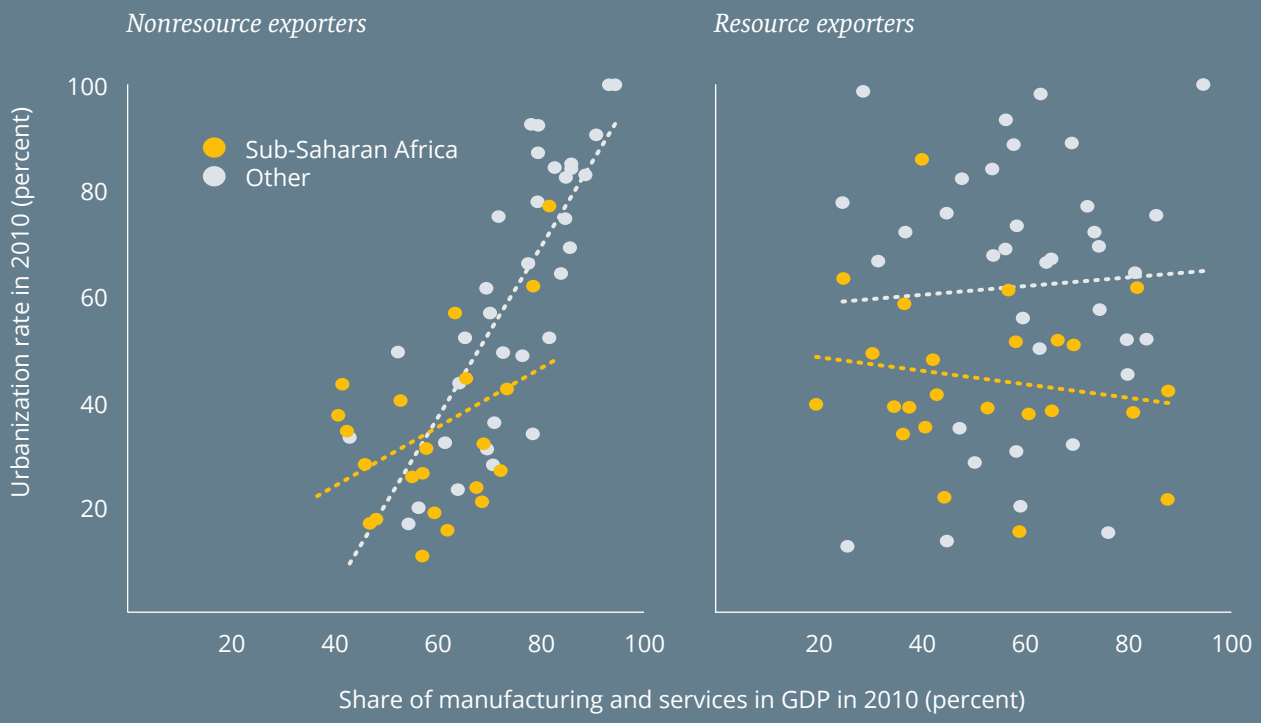
overlapping property-rights regimes, suboptimal and ineffective zoning regulations — that hinder the drive toward dense concentrations of structures. More, the resulting scattered neighborhoods lack planned transport and infrastructure connections. Without either high physical density or adequate connective infrastructure, an urban area falls short of its potential: It cannot offer firms the cost efficiencies and job matching advantages that open a city's doors to regional and global trade.

Even if the symptoms of Dutch Disease are mitigated by falling commodity prices, the typical African city will remain bound by constraints related to its form. These physical constraints deter regional and global investment. And because they are likely to persist as the principal constraints on economic growth, addressing them is one of Africa's most urgent challenges today. This report combines recent findings with original research and analysis to explain how the form of African cities is trapping them into local and nontradable production — and to point leaders toward policies that can spring the trap.

To be sure, urban form is not the only constraint on Africa's international competitiveness. Other important factors include business regulation; the lack of access to finance (for residential and commercial investments); the peculiarity of Africa's demographic transition; the absence of agricultural productivity gains; and, more generally, the macroeconomic context. These factors compound the risk that Africa's cities will remain unwelcoming to investment — that their development will continue along paths that preclude their entry into higher-productivity tradable goods sectors. And yet this threat of path dependency is itself closely, demonstrably related to the evolution of cities' physical form.

FIGURE 2

## In resource exporting countries, urbanization is linked only weakly to the development of manufacturing and services




Source: Gollin, Jedwab, and Vollrath 2016.

# Crowded, disconnected, and thus costly — Africa's cities are limited to nontradables by their urban form

Many Sub-Saharan African cities share three characteristics that constrain economic development and growth. Two appear directly in the cities' physical structures and spatial form: They are crowded with people and dwellings, and they are disconnected by a lack of transport and other infrastructure. Finally, and in Part because they are disconnected, cities are also costly. Indeed, they are among the costliest in the world, both for firms and for households — not least because of their inefficient spatial form.

## *Crowded cities*

African cities are crowded in that they are packed with people who live in unplanned, informal downtown dwellings to be near jobs. Why? The immediate reason is that the urbanization of people is not accompanied by an urbanization of capital (box 2). Housing, infrastructures, and other capital investments are lacking. Across the region, housing investment lags urbanization by nine years (Dasgupta, Lall, and Lozano-Gracia 2014).

An underlying cause of this crowding is that African cities are not economically dense or efficient enough to promote scale economies and attract capital investment. In principle, cities should benefit businesses and people through increased economic density. Firms clustered in cities should be able to access a wider market of inputs and buyers, with reduced production costs thanks to scale economies. Workers should consume more diverse products and services, pay less for what they consume, and enjoy easier commutes because of proximity to their jobs.

Africa's cities feel crowded precisely because they are not dense with economic activity, infrastructure, or housing and commercial structures. Without adequate formal housing in reach of jobs, and without transport systems to connect people living farther away, Africans forgo services and amenities to live in cramped quarters near their work. Often informal, these downtown districts are likely to lack adequate infrastructure and access to basic services. It is true that, within Africa as in other developing regions, population density is generally and strongly correlated with indicators of livability. For example, access to services is higher for African households in urban areas than in rural ones (Gollin, Kirchberger, and Lagakos 2016). But this relative advantage does not imply that cities are livable enough. Across Africa, 60 percent of the urban population is packed into slums — much higher than the 34 percent seen elsewhere (United Nations 2015a).

Related to the predominance of informal housing near African city centers is their relative lack of built-up area. For example, in both Harare, Zimbabwe and Maputo, Mozambique, more than 30 percent of land within five kilometers of the central business district remains unbuilt. This land near the core is not left unbuilt by design in African cities, as it can be in well-developed downtowns such as Paris (which reserves 14 percent of downtown land for green space, making densely populated districts more livable). Instead, outdated and poorly enforced city plans, along with dysfunctional property markets, create inefficient land use patterns that no one intended. The downtown lacks structures — despite being crowded.

**3**

Throughout Dar es Salaam, 28 percent of residents live at least three to a room

This figure rises to 50 percent in Abidjan

BOX 2

## Low capital investment in Sub-Saharan African cities during a period of rapid urban growth

Africa's cities are crowded because they lack formal, planned housing that is connected to jobs and services. Without sufficient formal development, informal settlements that are relatively central and thus close to jobs — such as Kibera in Nairobi, and Tandale in Dar es Salaam — are constantly growing in population.

In Dar es Salaam, 28 percent of residents live at least three to a room; in Abidjan, 50 percent (World Bank 2015a, World Bank 2016). And in Lagos, Nigeria, two out of three people dwell in slums (World Bank 2015b).

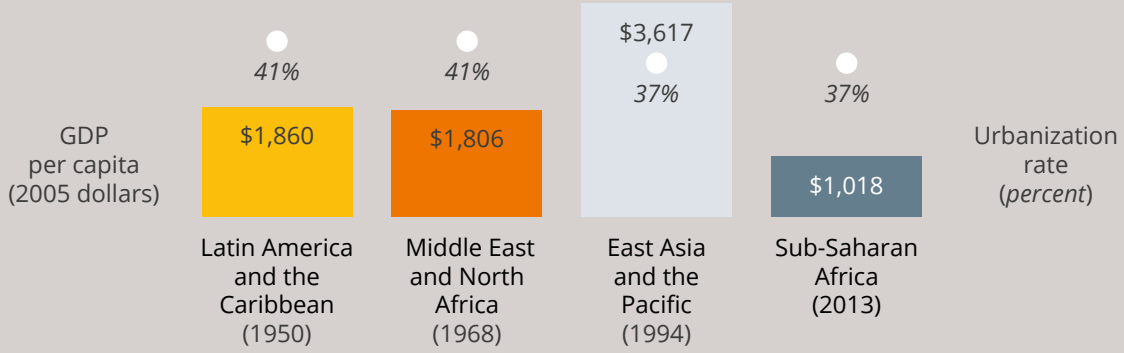
One factor in the crowding of Africa's cities is their lack of capital investment, which for the past four decades has remained relatively low in the region, at around 20 percent of GDP. In contrast, urbanizing countries in East Asia — China, Japan, the Republic of Korea — stepped up capital investment during their periods of rapid urbanization. Between 1980 and 2011, China's capital investment (infrastructure, housing, and office buildings) rose from 35 percent of GDP to 48 percent, while the urban share of its population rose from 18 percent to 52 percent between 1978 and 2012. In East Asia as a whole, capital investment remained above 40 percent of GDP at the end of this period.

Housing investment in Africa has also lagged behind that in other low income and middle income economies. Between 2001 and 2011, African low income countries invested 4.9 percent of GDP in housing, compared with 5.5 percent elsewhere; and African middle income countries invested 6.5 percent of GDP in housing, compared with 9 percent elsewhere (Dasgupta, Lall, and Lozano-Gracia 2014).

These figures underline the fact that Africa is urbanizing while poor — indeed, strikingly poorer than other developing regions with similar urbanization levels. In 1968, when countries in the Middle East and North Africa region became 40 percent urban, their per capita GDP was $1,800 (2005 constant dollars). And in 1994, when countries in the East Asia and Pacific region surpassed the same threshold, their per capita GDP was $3,600. By contrast, Africa, with 40 percent urbanization, today has a per capita GDP of just $1,000 (box figure 2.1).

BOX FIGURE 2.1

*Sub-Saharan Africa is urbanizing, but at lower levels of per capita GDP than other regions*



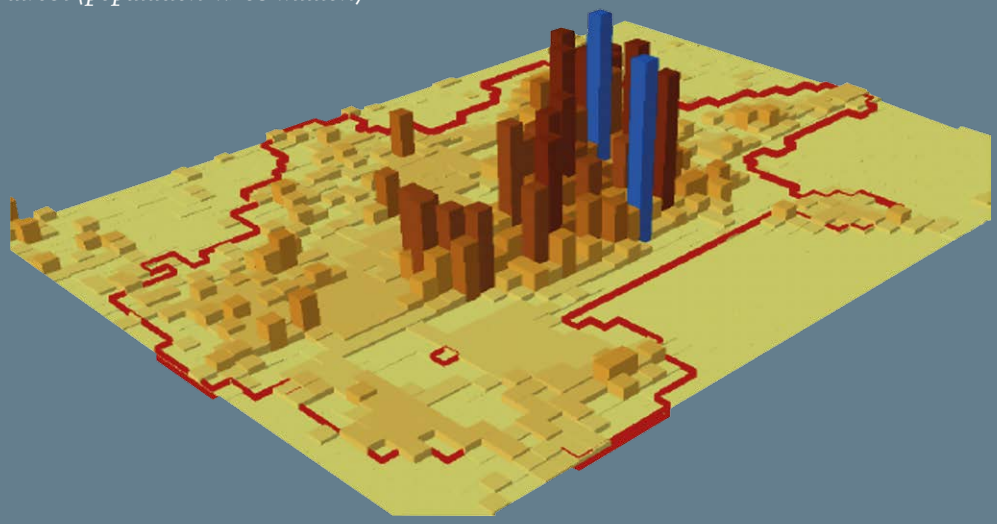

Source: Estimations using United Nations 2014 and WDI 2014 for the share of urban population, and WDI 2014 and Maddison Project to estimate GDP per capita.

Note: Years in parentheses are those with available data in which the region was closer to Sub-Saharan Africa's present urban share of about 40 percent. In 1950 urbanization in Latin America and the Caribbean was 41 percent; in 1968 urbanization in Middle East and North Africa was 41 percent; in 1994 urbanization in East Asia and the Pacific was 37 percent; in 2013 urbanization in Sub-Saharan Africa was 37 percent.

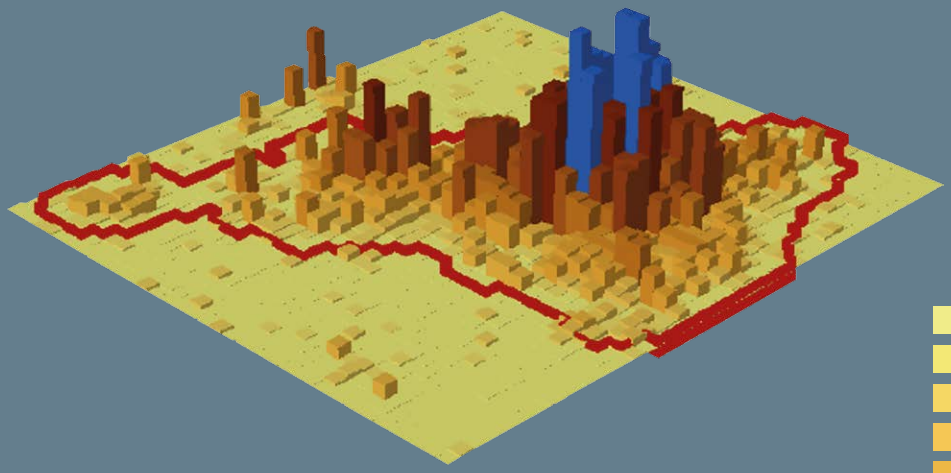
FIGURE 3

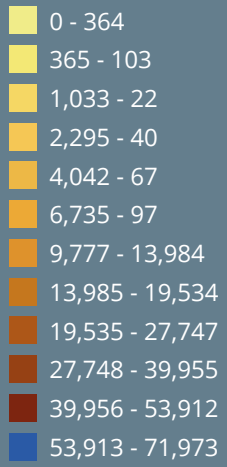
## Connections among people as a function of population near the city center: Nairobi, Kenya is more fragmented and less well-connected than Pune, India

*Nairobi (population 4.265 million)*



*Pune (population 5.574 million)*






Source: Henderson and Nigmatulina 2016.

Note: The blue bars show the highest densities in the city. While these peaks are concentrated in Pune, in Nairobi they are separated by lower densities.

Our analysis of imagery from satellites and geographic information systems (GIS) confirms that in African cities, capital investment not only appears low near the urban core, but rapidly declines outside it. A stark contrast emerges between patterns of downtown population density — in which Africa largely resembles other regions — and of economic density (as reflected in patterns visible from above that indicate capital investment). Africa's generally low levels of urban capital investment also appear in the assessed worth of building stock. For example, the total economic value of buildings in Dar es Salaam is estimated at around US$12 billion (Ishizawa and Gunasekera 2016), or just less than three times the city's share of GDP. Even lower are the estimated values for Nairobi, Kenya ($9 billion) and Kigali, Rwanda ($2 billion). Compared with cities in Central America, African cities have low replacement values for their built-up area, built-floor area, and population. Thus, Nairobi has the highest replacement value per square kilometer among the four African cities studied, yet it is just 60 percent of the value of Tegucigalpa, which has the lowest among six Central American cities.

Although the capital investment shortfall that makes African cities crowded appears across all building types, it is most severe in housing. In Nairobi, for example, commercial and industrial structures explain 55 percent of the total value of building stock — even though these structures occupy just 4 percent of the city's area. Residential development is urgently lacking.



## *Disconnected cities*

While the lack of capital by itself might not always pose an obstacle to economic growth, African cities also are disconnected in that they are spatially dispersed. Structures are scattered in small neighborhoods. Without adequate roads or transport systems, commuting is slow and costly, denying workers access to jobs throughout the larger urban area. People and firms are separated from each other and from economic opportunity. And because urban form is determined by long-lived structures that shape the city for decades — if not centuries — cities that assume a disconnected form can easily become locked into it.

The lack of connections among neighborhoods means that African cities, compared with developed and developing cities elsewhere, show both lower exposure and higher fragmentation in connections among people living near the city center.

- Low exposure means that people are disconnected from each other. At a given distance (usually 10 kilometers), they cannot interact with as many people as in a city with higher exposure.
- High fragmentation means that within a specified area, population density varies widely: Its peaks are scattered, not clustered in a way that could promote scale economies. Fragmentation increases infrastructure costs, while it lengthens travel times among homes, job sites, and businesses.

According to a new study of 265 cities in 70 countries that controls for total population and per capita GDP, average exposure near the center is 37 percent lower in African cities than in Asian and Latin American cities, while African cities are 23 percent more fragmented (Henderson and Nigmatulina 2016). The contrast between Nairobi, Kenya and Pune, India illustrates these differences (figure 3).

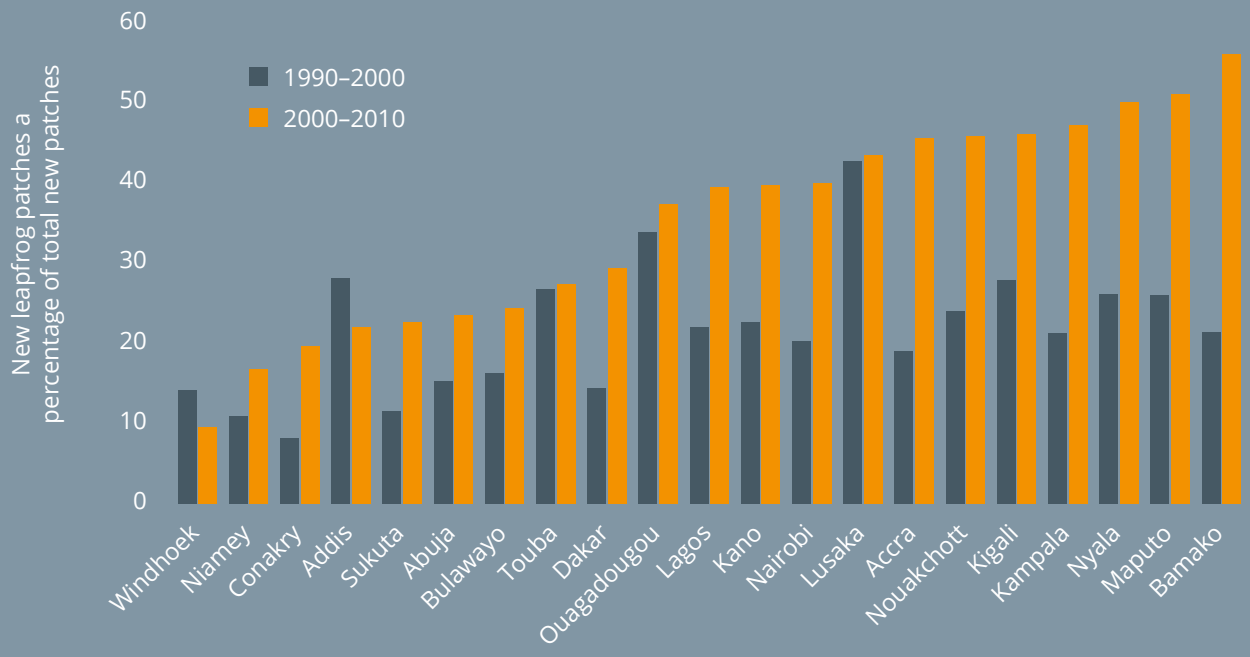
One pattern that explains the low exposure and high fragmentation of African cities is their relative lack of new development near the center. New construction is not clustered to make capital more concentrated and increase economic density. Instead, it tends to push the boundaries of the city outward. In urban development language, this kind of building-out represents either expansion or leapfrog development; opposed to both is infill, which makes cities denser.

- Expansion development enlarges a city's footprint at the edge of the consolidated urban area.
- Leapfrog development also enlarges the footprint, but does so by establishing satellite areas — parcels of newly built land that do not border on or overlap existing development.
- Infill development is construction on unbuilt parcels surrounded by existing developments.

Among the three types of new development, infill is the best for economic exposure, or connections among people: It defragments the city and connects workers, jobs, and firms. Expansion and leapfrog development are the opposite: They are less likely to foster economic connections. Our analysis of GIS imagery for 21 African cities over 2000–2010 shows that, during this period, between 46 and 77 percent of new development occurred as expansion. The share of infill was typically much lower.

FIGURE 4

## Leapfrog development: Undermining scale and agglomeration economies in African cities




Source: Construction based on data in Baruah (2015).

Note: Leapfrog patches as a share of all new development patches, by city, 1990–2000 and 2000–2010. Leapfrog patches are defined as continuous built-up area that do not border or intersect with existing development.

An even greater concern than the preference for expansion over infill development is the increase in leapfrog development, which is now appearing outside various cities. In Bamako and Maputo, such leapfrog patches account for more than 50 percent of the change to the urban fabric over 2000–2010. In many other cities this share approaches or exceeds 40 percent (figure 4). The patches often being small, their isolation from existing development will undermine city governments' efforts to provide the networked services that require scale economies — and that undergird urban productivity.

The prevalence of expansion and especially leapfrog development is just one pattern that makes urban commuting challenging in African cities; another is deficient transport infrastructure. Traffic congestion can hobble the economy with long commuting times. In Nairobi, the average journey-to-work time is one of the longest for 15 global cities studied (IBM 2011). Part of the reason is that walking accounts for a large share of commuting — in Nairobi about 41 percent (UNEP and FIA Foundation 2013). But even if more city dwellers could afford transport by car or minibus, commutes would remain impractical for lack of roads. In eight representative African cities, roads occupy far lower shares of urban land than in other cities around the world.

The deficiency of urban road infrastructure is made worse by its extreme concentration near the core of African cities, leaving outer areas disconnected. Our GIS study shows that in well-developed cities outside Africa, land allocated to roads declines only gradually as one looks out from the center toward the periphery: An example is Paris (figure 5). By contrast,

FIGURE 5

## Paved roads occupy a smaller share of urban land in Africa than elsewhere — and usually drop off abruptly beyond the city center


Africa's urban roads are disproportionately clustered near the center. In Addis Ababa, Dar es Salaam, Kigali, and Nairobi, paved roads drop off so abruptly outside the downtown area that they nearly disappear (Dakar being a notable exception to the African pattern). Households in African cities find it difficult to settle outside central business districts, as the lack of paved roads makes commuting from the periphery impractical (Felkner, Lall, and Lee 2016).

Considered as a whole, the average urban area in Africa is not strikingly less built-up than its counterparts in other regions (except in Asia, where cities are more densely built; Angel and others 2011). What is lacking is the economically dense concentration of capital and infrastructure investment that enables households to live decently and affordably near jobs. Because of this lack of economic density, Africa's city centers remain dominated by a retail industry that does not benefit from economies of specialization: For example, in Kigali and Kampala many urban workers purvey food and beverages. The spatial fragmentation of Africa's cities prevents firms from reaping both scale and agglomeration benefits. It prevents scale economies by reducing workers' access to jobs, constraining firm size: Africa's urban firms employ 20 percent fewer workers on average than comparable firms elsewhere (Iacovone, Ramachandran, and Schmidt 2014). In addition, spatial fragmentation hinders agglomeration economies by preventing job market pooling and matching and the transfer of skills and knowledge — a special concern in light of African cities' low human capital endowments. Urban agglomeration economies thrive on knowledge spillovers, which presuppose a mix of specialized

FIGURE 5 *(cont.)*

## Paved roads occupy a smaller share of urban land in Africa than elsewhere — and usually drop off abruptly beyond the city center


Source: Based on Antos, Lall, and Lozano-Gracia 2016 and Felkner, Lall, and Lee 2016.

Note: CBD = Central Business District. Data for European cities are from the European Environment Agency's Urban Atlas data layers. Data for African cities are from very high resolution (0.5 m) satellite images taken in 2013.

cognitive skills in the labor market. African urban workers are relatively poor in such skills, according to results from the first initiative to measure skills in low-income and middle-income countries (the World Bank STEP Skills Measurement Program). If workers are to sort by ability — as they should to generate agglomeration economies — then Africa's cities will need, among other things, to restructure their labor market by attracting and growing more specialized talent.

In sum, the ideal city can be viewed economically as an efficient labor market that matches employers and job seekers through connections (Bertaud 2014). The typical African city fails in this matchmaker role. A central reason for this failure — one that has not yet been sufficiently recognized — is that the city's land use is fragmented. Its transport infrastructure is insufficient, and too much of its development occurs through expansion rather than infill. While the underlying causes of these problems are regulatory and institutional, the effects of spatial fragmentation are material: It limits urban economies.

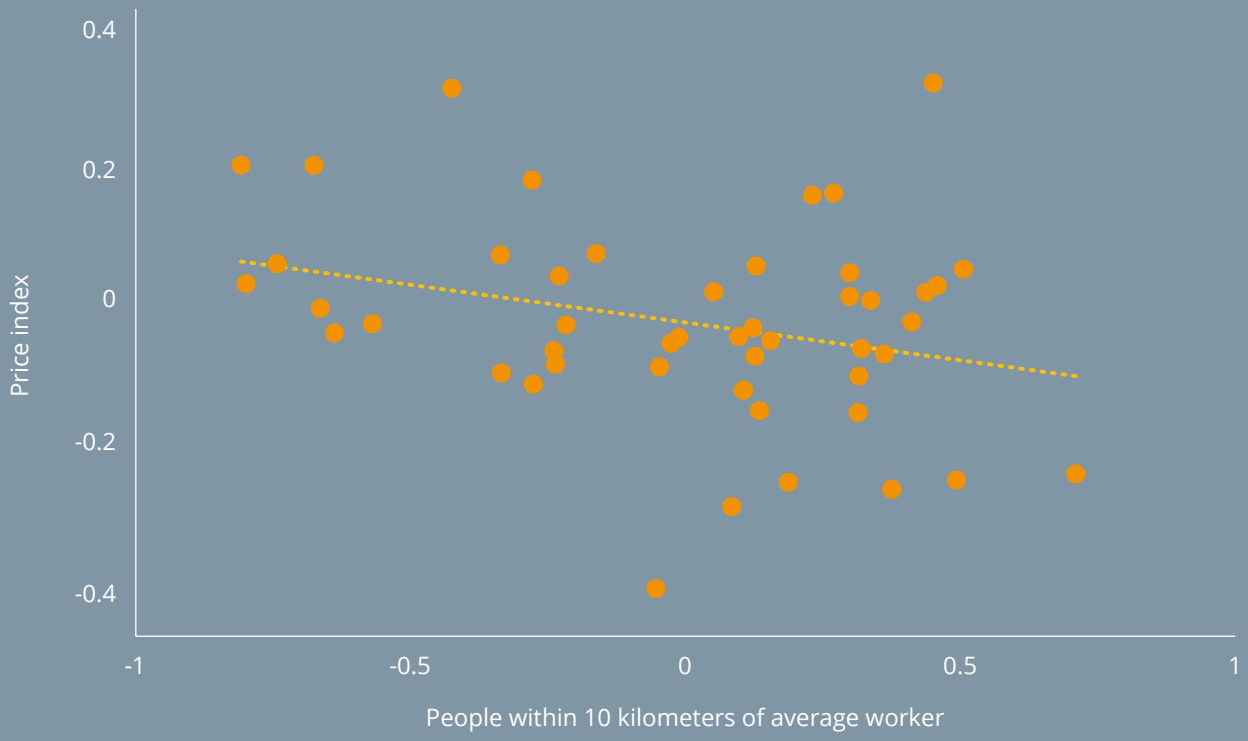
### *Costly cities*



Fragmented urban forms impose high living costs on workers and households, resulting in indirect costs and other constraints for firms: In short, African cities are costly both to live in and to do business in.

FIGURE 6

## A fragmented urban form is associated with higher urban costs




Source: Estimations using Nakamura et al. (2016) and Henderson and Nigmatulina (2016).

Note: The figure shows a residual-on-residual plot. The x-axis depicts the residuals from a regression of the Puga10 Index, log scale (based on Henderson and Nigmatulina, 2016) controlling for log GDP per capita, log population, a dummy for SSA, and percentage of urban population. The y-axis plots residuals of the adjusted price index, log scale (based on Nakamura et al., 2016), on the same controls. The lower the people within 10 km of the average worker, the higher the price index.

According to the new research underlying this report, the higher cost of living in African cities is related to their lack of dense spatial form and infrastructure connections (figure 6). Higher spatial densities appear to reduce costs: For example, a 1 percent reduction in spatial fragmentation measured by the Puga Index is associated with a 12 percent reduction in urban costs, controlling for income levels and city population.

While higher living costs directly affect workers, they ultimately are borne by urban firms. Higher wages mean lower returns — unless workers are more productive. And without the economic density that gives rise to efficiency, Africa's cities do not seem to increase worker productivity. The result is that investment expectations remain low for cities in the region.

Africa's higher urban living costs appear in rents, food prices, and prices for other goods and services. City dwellers pay around 35 percent more for food in Africa than in low-income and middle-income countries elsewhere: a premium that looms larger given the high share of African household incomes that goes to food. Even higher differentials apply to urban housing (55 percent higher in urban areas of African countries, relative to their income levels) and transport (42 percent higher in African cities than cities elsewhere, including vehicle prices and transport services). Overall, urban households pay 20 to 31 percent more for goods and services in African countries than in other developing countries (figure 7).

FIGURE 7

## Urban living costs in Sub-Saharan African countries in 2011 exceeded costs elsewhere, relative to Africans' lower per capita GDP


Source: Nakamura et al. 2016, based on data from the 2011 International Comparison Program (ICP) and WDI.

Note: The adjusted price level index (PLI) for household consumption excluding housing rent is standardized so that the average PLI equals to 100. PLIs for 15 Asian countries are inflated by 10 percent.

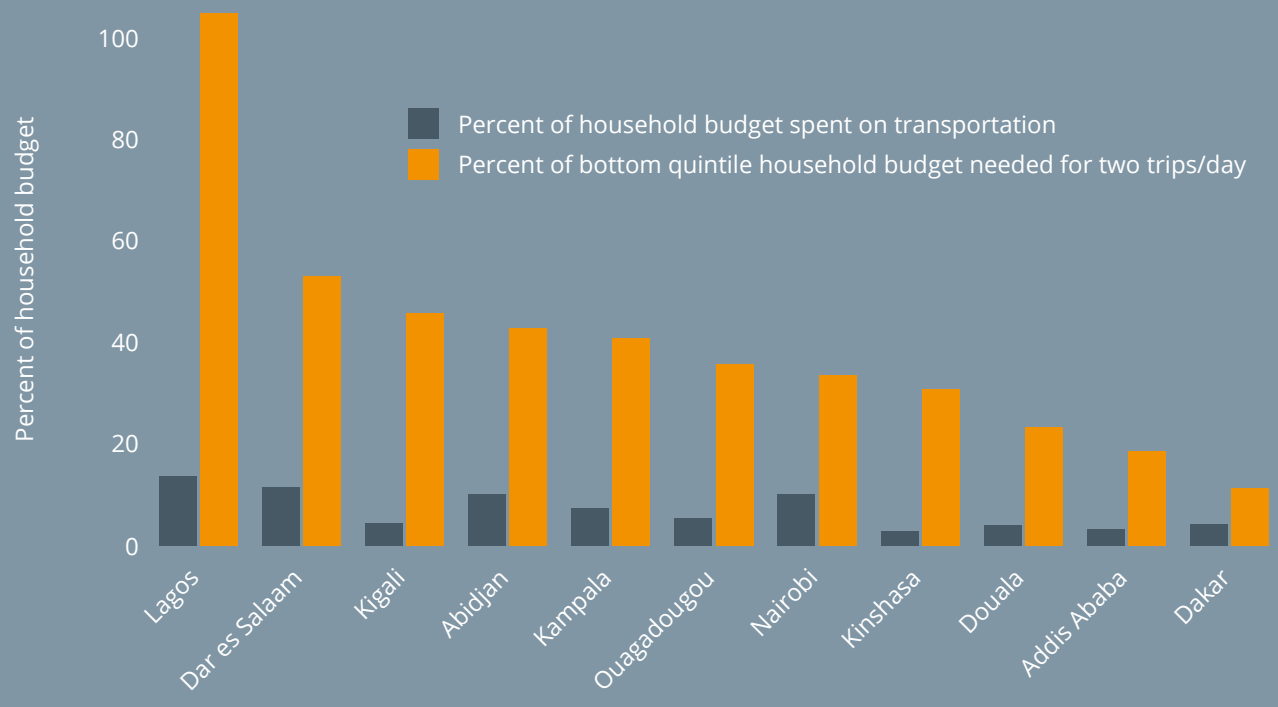
Urban workers in Africa incur high commuting costs — or they cannot afford to commute by vehicle at all, and must walk to work. The informal, often colorful minibus systems that dominate collective motorized transit in most African cities are far from cost-efficient: The buses' low load factor (passenger capacity) prevents them from realizing scale economies. For the poorest urban residents especially, the cost of vehicle transport in some cities is prohibitive, as measured in a study from 2008 (figure 8). The need to walk to work limits these residents' access to jobs.

The high cost of living affects not just households but also firms, which have to pay higher wages in cities where the cost of living is high. In addition, urban workers may need to be compensated for poorer living conditions in informal settlements with scarce amenities. Manufacturing firms in African cities pay higher nominal wages than urban firms in other countries at comparable development levels: unit labor costs are three times higher in Djiboutiville, Djibouti, than in Mumbai, India and 20 percent higher in Dar es Salaam, Tanzania than in Dhaka, Bangladesh.

Cities in Africa are costly for households, workers, and businesses. Because food and building costs are high, families can hardly remain healthy or afford decent housing. Because commuting by vehicle is not only slow but expensive, workers find it hard to take and keep jobs that match their skills. And the need for higher wages to pay higher living costs makes firms less productive and competitive, keeping them out of tradable sectors. As a result, African cities are avoided by potential regional and global investors and trading partners.

FIGURE 8

## Share of urban household budgets spent or needed for transport in 11 Sub-Saharan African countries (analysis from 2008)




Source: Kumar and Barrett 2008.

# Closed for business, out of service: The urgency of a new urban development path for Africa

African cities are crowded as well as disconnected, making them costly for firms and for residents (see figure 6). Potential investors and trading partners quickly see evidence of the physical and economic dysfunction that constrains public service provision, inhibits labor market pooling and matching, and prevents firms from reaping scale and agglomeration benefits. So these potential partners stay away, fearing lack of return on their investment.

The problem is not a simple one of underinvestment leading to low infrastructure, but a more complex one involving the interdependence of many investment decisions. Business investment decisions depend on the presence of other businesses — a firm's customers and its suppliers — and of workplaces that can be reached from residential areas. Investment will flow into housing if demand rises, driven by rising worker incomes. Infrastructure finance depends on revenues from a growing city. All these investments are interrelated, and in all of them expectations are crucial. Investors' low expectations become self-fulfilling when one investment fails to take place, reducing the expected return to others. The resulting vicious circle locks cities into a low development trap. (The underlying analytic framework describing such traps is presented in Chapter 4.)

## *Cities are "closed for business"*

A firm's business decision to produce internationally tradable goods and services will depend on its input costs. Among these input costs are urban costs: the added costs that workers face when living in a city. Urban costs include rent, commuting costs, and the high price of many goods. To attract workers, firms must raise wages to offset (or partially offset) these costs. Yet even as nominal wages climb to reflect high or rapidly rising urban costs, real wages remain low (see chapter 4 for detailed discussion).

When urban costs drive nominal wages too high, firms will not be able to compete in the tradable sector and will produce only nontradables. The nontradable sector includes certain goods (beer and cement are examples), the construction trade, the retail trade, and many service sector activities, including informal sector employment. Demand for these goods and services comes from income generated within the city and its hinterland — but also from income transferred from outside, such as resource rents, tax revenues, and foreign aid.

The reason why a firm in the nontradable sector can afford to pay higher wages — while a firm in the tradable sector cannot — is that the nontradable producer can raise its prices citywide. By doing so, it passes its own cost increases on to consumers in the urban market. But such price hikes make the cost of living in a city even higher, contributing to the workers' urban costs. This sequence can become a vicious cycle that keeps African cities out of the tradable sector and limits their economic growth.

Often, proposed solutions to Africa's urban challenges focus simply on increased investments in structures or on reforming urban planning. These actions are necessary and urgent — but, by themselves, they are unlikely to lift cities out of the nontradables trap. Why? because coordination failures tend to inhibit the formation of new clusters of economic activity, which are necessary for efficient tradables production (see, among others, Henderson and Venables 2009).

Given the dynamics described above, no firm wants to be the first to enter the tradables sector. Yet many would become established if they could coordinate their entry. To enable coordination, a city needs a credible coordination agent: either a forward-looking group of firms that can harmonize their plans and make a move together, or a large-scale land developer or municipal government that can realize its vision through major infrastructure investment (Henderson and Venables 2009). Without such coordination the move into tradables will fail, leaving the city "closed for business."

## *Cities are "out of service"*

More than 60 percent of African's urban population lives in areas with some combination of overcrowding, low-quality housing, and inadequate access to clean water and sanitation (United Nations 2015a). Why have cities in the region remained so deficient in housing and basic services?

A fundamental reason is that Africa's urban dysfunction is self-perpetuating: It lowers expectations, and low expectations deter the investments needed for improvement. Housing investment decisions shape urban form. Providing housing in the formal sector means deciding to sink costs in long-lived structures. And such decisions depend critically on expectations for a city's future prospects. Cities that inspire high expectations will

attract greater investment in formal sector structures, including residential structures, which reduce urban costs and in turn attract more investment. In contrast, cities that seem likely to remain artisanal — based on low-value nontradables production — foster low expectations for the growth of land rents over time. With little incentive for investment in formal structures, a lack of capital investment keeps cities disconnected and urban costs high, perpetuating the cycle.

Alongside the general effect of low expected returns, specific features of the business and regulatory environment in African cities create further barriers to capital investment. These features include property law and land use regulations, along with the design and enforcement of urban plans.

Systems of property law and land ownership in Africa are often the first and most cumbersome regulatory burden weighing on urban development. For example, a majority of the land in Kampala, Uganda operates under a complex land tenure regime that recognizes independent rights over land and structures — giving rise to legal disputes and blocking investment (Muinde 2013). The problem takes a different form in Nigeria, where urban land transactions incur high costs, and inefficient regulations further bog down formal development. In Lagos and Port Harcourt, titling expenses alone can reach 30 percent of construction costs, while total transaction costs range from 12 to 36 percent of a property's value (World Bank 2015b). As a result, land is developed informally: In Ibadan in 2000, researchers found that 83 percent of homes violated city zoning rules (Arimah and Adeagbo 2000).

Urban plans are largely ineffective in Africa. One reason is that they are divorced from reality: They typically do not consider finances, market dynamics and interests, social diversity, or differences among income groups. Another reason is that, when enacted, regulations lack built-in implementation mechanisms. As a result, human capacity constraints and financial resource constraints preclude effective enforcement. More generally, the intentions and outcomes of urban plans are distorted by institutional failure and fragmentation (across sectors and levels); by political interference; and by lack of consideration of a city's political economy.

Inappropriate or unrealistic regulations and opaque guidelines, especially on land ownership, impede access to land and discourage the formal development of city centers. Political risk can make future rents even more unpredictable. As a result, the returns from construction in Africa's cities are intolerably uncertain — and cities remain "out of service."

## *Path dependence and interdependence*

When a city appears "closed for business" and "out of service," potential partners stay away, fearing low to no returns. At present this vicious cycle of low expectations appears likely to keep Africa's urban economies undercapitalized, making the region's development all the more challenging.

Compounding this problem of low urban expectations is the reality of path dependence –identified in recent work as a central concern for policymakers. Cities that grow inefficiently, without any effective plans or incentives to integrate their physical form, are likely to be locked into the resulting disconnected forms. Urban structures share a "putty-clay" quality: Once built, they are difficult to modify and can stay in place for more than 150 years (Hallegatte 2009). In addition, infrastructure investment needs to be planned well in advance; if a growing city lacks a comprehensive, forward-thinking plan to provide basic infrastructure services — sewerage, drainage, electricity, clean water, and connectivity — it will have to add them later. That means adding them inefficiently and at far greater cost, and as afterthoughts and in response to piecemeal demand from individuals (Collier 2016).

As important as path dependence is interdependence among urban structures, infrastructure, and services. Much of a structure's value reflects complementarities with other structures in the neighborhood or city. For example, this report documents the benefits of road investments for private investments in residential and commercial structures (chapter 6). All social returns on public infrastructure depend on the proximity of housing and premises: Thus, a rapid transit system is more viable at higher densities. Policies need to leverage these complementarities, avoiding coordination failures and single-sector interventions that get in the way of economic density.

Cities that continue on inefficient development paths are growing, but in a counterproductive direction. Their physical structures and infrastructure will not keep up with their rising population. As they continue to amass sunk capital — while passing up opportunities for complementary investments that will never come again — they will sink deeper into the low development trap. And they might not dig themselves out. They could remain "out of service" and "closed for business" forever.

# Springing cities from the low development trap

We now understand more about the low development trap in which African cities find themselves. They are crowded rather than economically dense, and they are physically disconnected; as a result, they are costly. High costs deter investors through low expected returns — while the city's unlivable appearance vividly corroborates these low expectations. As a result, the urbanization of capital in Africa is lagging far behind the urbanization of people. Migrants crowd into slums, simply to be near where the jobs are.

How can Africa's leaders and policymakers spring cities from this trap? Crucially, they must first realize that the problem does not begin with low capital investment and the lack of physical structures, or even with undersized infrastructure. To be sure, low investment in structures limits urban economic density; it exacerbates spatial fragmentation, and it precludes agglomeration economies. But the lack of investment results from low investor expectations, which result when cities are spatially dispersed and disconnected.

When potential investors and trading partners look at African cities, they see spatial fragmentation and a lack of connections. They know that such fragmentation constrains public service provision, inhibits labor market pooling and matching, and prevents firms from reaping scale and agglomeration benefits. So the key to freeing Africa's cities from their low development trap is to set them on a path toward physical and economic density, connecting them for higher efficiency and boosting expectations for the future.

The first priority is to reform land markets and land use planning — to promote the most efficient uses of urban land, and to develop land at scale.

## *Formalize land markets,clarify property rights, and institute effective urban planning*

Informal land markets are not good enough for African cities. Urban land is a vital economic asset, and asset transactions are viable only where purchasers can rely on enduring extra-legal documentation of ownership. A formal market both offers purchasers the protection of the state and — because transactions are readily observable and recorded — generates the public good of accurate valuation.

Clear rights to urban land are a precondition for formal land markets. African cities struggle with overlapping and sometimes contradictory property-rights systems — formal, customary, and informal (box 3). When these systems pose barriers to urban land access, they impede the consolidation of plots and the evolution of land use. Firms cannot readily buy downtown land to convert it from low-density residential use into higher-density apartments, or to build clusters of new commercial structures. Land transactions are long, costly, and complicated (World Bank 2015c). Such market constraints reduce the collateral value of structures, giving developers little incentive to invest in residential height — while tempting all parties to enter informal arrangements (Collier 2016).

Formalizing land markets is essential; so is making them work. Constraints on formal land markets contribute to the typical African city's spatial fragmentation and to the relatively low capital investment near its core. Not only will efficient land markets notably increase economic efficiency, they will also help African cities tap the potential of rising land values to finance infrastructure and other public goods. (But such financing strategies bear risk; they presuppose stable property rights and predictable law enforcement.)

While urban land markets need to work more efficiently, cities also must strengthen their urban plans and land use regulations. African cities today use planning models and regulatory codes that may be relics of colonial regimes, or that may be uncritically imported from developed countries (Goodfellow 2013). Urban planning documents do not give credible accounts of finance, market dynamics, or distributional impacts. Guidelines are not sufficiently articulated, granular, or transparent to support consistent and enforceable development planning. Capacity and resource constraints undermine implementation. City and country authorities will need to add urban planning capacity — and to make tough political decisions informed by technical evidence and assessments.

Land use regulations, such as zoning ordinances and building codes, are necessary to make urban plans into realities. Although planners may promote spatial density as a public good, the cost of investing in housing and commercial structures is borne by households and firms. (The benefits of economic density and exposure are an externality.) Because private actors on their own will not prevent market failures in the allocation and use of land, urban land use regulations must be clear and their enforcement predictable.

BOX 3

## Urban land and property rights: A need for clarification

Unclear land rights are severely constraining urban land redevelopment throughout Africa, imposing high costs. Under the customary rules for land tenure that control much urban and peri-urban land, property rights depend on the consent of local chiefs or family elders. One example is Durban, South Africa. Other examples are in Ghana, Lesotho, Mozambique, and Zambia. Such cities often struggle with overlapping and conflicting tenure systems — formal, customary and informal.

Even where formal titles or clear land rights exist, basic mapping, geographic or ownership information is often inaccurate or land records maintained poorly, causing disputes. Applying for formal recognition can also be tedious and costly (Toulmin 2005). In Mozambique one can apply for concession to a land plot from the relevant municipal directorate or municipal cadaster services. But the application can involve as many as 103 administrative steps over several years (UN-Habitat 2008). The lack of a proper registration system prevents urban land markets from functioning well, and it creates obstacles to the raising of capital for development and investment — and to the raising of revenue by the local authority.

Across Africa, opaque and inadequate land databases and information systems distort land prices and availability. Finally, land administration systems (such as registries and cadaster records) are incomplete and underused for enforcing legal claims and landholders' fiscal obligations, so lenders cannot always use land as collateral. In Sub-Saharan Africa, only 10 percent of total land is registered (Byamugisha 2013). In West Africa, only 2–3 percent of land is held with a government-registered title (Toulmin 2005).

The good news is that African countries are taking steps to clarify land rights. Botswana took the bold step of regularizing customary lands in 2008, partly because the Land Boards faced challenges to administering tribal land (Malope and Phirinyane 2016). Zambia passed a new planning bill in 2015, extending planning controls across state and customary land and designating all local authorities as planning authorities (Wesseling 2016). Namibia recognizes traditional leaders as part of the formal land system; they are designated by the president and their details published in the government gazette (United Nations 2015b).

Some countries and cities are developing hybrid regimes to make formal and customary administration more compatible. For example, in Nigerian states with largely Muslim populations, the emir's representatives subdivide and allocate land with the help of volunteer professionals from government: An example is the city of Rigasa, in the extreme west of Kaduna (Igabi, Local Government Area, Nigeria). Future Urban redevelopers in Africa may learn from the past successes of two approaches — land sharing and land readjustment — in several Asian cities.

The market pricing of land depends partly on other policies besides land use regulations. Taxes, charges, and subsidies can be used to complement regulations, creating financial incentives and disincentives. Revenues — land taxes, for example — can also be used to finance administration and infrastructure. And implementation tools such as capital investment, budget, and phasing plans can assist upstream planning.

### *Make early and coordinated infrastructure investments — allowing for interdependence among sites, structures, and basic services*

Research conducted for this study supports the value of early investments in neighborhood infrastructure and services (chapter 6). But coordination among these investments is equally crucial, given that cities are both path-dependent and interdependent. Large infrastructure projects carry high sunk costs: Like any large structures, they depreciate very slowly over decades or even centuries (Philibert 2007). And the costs of developing housing, infrastructure, and industrial premises depend on sequencing. Consider the relation of new transport systems and industrial zones. If not coordinated with one another, and with land markets and land use regulations, these projects can put cities on a counterproductive development path.

Such large investments, especially at scale, will require financing through new systems of revenue. Public infrastructure projects incur costs far in advance of their benefits to productivity and livability, and the large capital outlays required can appear daunting. The central government transfers on which African cities often rely will not suffice. City leaders, country authorities, and the international aid community

BOX 4

## Leveraging land values to finance Africa's urban infrastructure

Making Africa's cities well connected and economically dense will entail huge infrastructure investments. Urban public finance in the region has traditionally relied on revenues from intergovernmental transfers. Future investments should leverage the value of city assets — mainly land — to finance infrastructure and provide public goods and services.

Land-based infrastructure financing will bring the biggest payoff where cities are growing rapidly. Rapid growth drives swift increases in land prices and creates large revenue opportunities. Yet it also magnifies infrastructure investment needs, requiring major sources of development finance. Land-based financing has funded large leaps in the scale of urban investment in France, Japan, and the United States.

Taxes on land can fund investments while also promoting more efficient land use — giving landowners an incentive to develop the land to its most profitable use given the market value of their property. Valuable downtown land will become more densely developed, attracting investment in residential and commercial structures. And land taxes are nondistortionary. (Appreciated land values are economic rents for a scarce resource, not a return on the economic activity of the owner — so, unlike in production, no owner behavior exists to be distorted.)

Higher revenues from land and real estate can come through:

- Improved valuation of land and properties closer to their market value, deepening the tax base.
- Improved enforcement of land and property taxes on a larger number of owners, broadening the tax base.
- Monetization of underused public land.

Devising systems of land and real estate taxation that promote economic density is not easy. Strong institutions are needed to clearly define property rights; to ensure standardized and objective methods of land valuation; and to support and oversee land management, land sales, and tax collection. For pure real estate taxes, policymakers should realize that property values generally respond more slowly than other taxable wealth to annual changes in economic activity — while "property areas" respond still more slowly.

should therefore study various financing options. One is to leverage land values (box 4) — although many cities in Sub-Saharan Africa are not currently allowed to raise revenues from land (World Bank 2015c), and their weak fiscal cadaster records and capacities pose a further challenge.

Unregulated markets are unlikely to solve the problems of coordination, path dependence, and interdependence. Public policy and planning are needed to get urban structures "right." This imperative is especially challenging in Africa, where fragmented urban development may already be locking cities into high-cost paths. And since the low expectations that come with high costs are self-fulfilling — expectations affect investments, which in turn affect expectations — cities that lack durable capital today may have an even harder time financing its acquisition tomorrow.

Even if developers expect an African city to grow, they might not know where growth is likely to occur — a type of coordination failure. One mechanism for overcoming such failures is a sunk investment made by the government or a group of investors. Sunk investments can have long-run effects, sending a strong signal to other potential investors. It has been argued that "investments sunk historically, even small ones that have now depreciated completely, might serve as a mechanism to coordinate contemporary investment" (Bleakley 2012).

Decisions about a city's growth pattern, based on underlying transport investment choices, will strongly influence future greenhouse gas emissions and environmental sustainability. Scholars have proven the impact of urban form on driving behaviors, modal choices, transport-related energy consumption, and carbon dioxide emissions (Newman and Kenworthy 1989). African cities now enjoy a unique opportunity to avoid carbon-intensive urban transportation trajectories. Getting these choices right the first time — while urbanization is still in its early stages — is critical. Given the path dependence of urban settlements, polluting now and cleaning up later is not an option.

In coordinating land use policies with infrastructure plans, it is finally important to consider risk from natural hazards. While 70 percent of high-income countries integrate land use with the management of

natural-hazard risk, only about 15 percent of low-income countries do so (World Bank 2012a). Yet cities in these low-income countries are more vulnerable to natural hazards, including the floods that are now so destructive in many parts of the world. Coordinating land use planning with the management of natural resources, including water resources and water supply, is essential (World Bank 2012b). Swakopmund, Namibia, a city of 42,000 surrounded by environmentally sensitive areas, limits development to zoned "townlands" and has protected watersheds with integrated environmental, sector, and land use planning.

## Opening the doors

That African cities are crowded is apparent from the ground — both in the growth of informal settlements, and in the traffic that snarls urban roads. That the same cities are disconnected can be seen from satellite images showing land use. And that these cities are costly appears in price and wage data, as interpreted by economic analysis.

This report explains the high costs of living and doing business in African cities as consequences of their inefficient urban form. Distortions in factor and product markets leave cities without adequate housing, commercial structures, or connective infrastructure. Such cities are not just difficult and costly to live in, but costly to do business in — they scatter firms, prevent labor market pooling, and limit specialization across settlements. The urban economy is restricted to nontradable, as opposed to tradable, activity.

So long as Africa's cities are in evident disarray, with fragmented forms and dysfunctional markets, they will continue to signal low expectations and stay in this low development trap. At best, they will proceed farther



BOX 5

### Building dense, connected, and efficient cities: Two models of success

One model of successful urbanization is the Republic of Korea, where urban planning and land management institutions evolved to meet challenges at each stage of urbanization. Land development programs were established first, followed by a land use regulation system. Then came comprehensive urban planning, with guidelines for mandatory 20-year visions, zoning decisions, and planning facilities. Downtown development projects systematically adhered to phased scenarios under the comprehensive plans. Later, in the 1990s and 2000s, Korea integrated separate laws regulating urban and nonurban areas, and in 2000 it instituted metropolitan city-regional planning (between the city and the county or province). Meanwhile, the government initiated large-scale apartment construction projects that solved Korea's most serious urban housing problems. Multiple transport modes were developed. Road projects over time have included urban highways and pavement projects as well as a network of expressways. And the nation's rail network includes urban subway lines alongside traditional railroads and high-speed rail — the bullet trains that have shrunk Korea into a half-day travel zone.

A different sort of success story is that of Bangkok, where less restricted land markets were able to adapt to growing demographic and economic pressures and climbing costs. Over 1974-88, when growth was rapid and land and housing construction prices on the rise, developers responded by increasing the density of their housing projects. Average units per hectare rose from 35 to 56. Multifamily housing increased from less than 2 percent of new construction in 1986 to 43 percent in 1990. With these shifts, developers were able to profit through the construction of affordable housing (Dowall 1992). Over 1986-90, almost half the growth in Bangkok housing stock was from private development, while informally produced housing composed a mere 3 percent of the total. In other cities with highly constrained land markets, informally produced housing composed 20-80 percent of the total (Dowall 1998).

along the inefficient path of slow and inadequate land development and infrastructure investment.

Fortunately, the need for more efficient cities is easy to see and impossible to ignore. Africa's urban areas are quickly gaining in population: Home to 472 million people now, they will be twice as large in 25 years. The most populous cities are growing as fast as 4 percent annually. Productive jobs, affordable housing, and effective infrastructure will be urgently needed for residents and newcomers alike.

In urgency lies opportunity. Leaders can still set their cities onto more efficient development paths if they act swiftly — and if they can resist flashy projects, steadfastly pursuing two main goals in order of priority:

- First, formalize land markets, clarify property rights, and institute effective urban planning.
- Second, make early and coordinated infrastructure investments that allow for interdependence among sites, structures, and basic services.

A third goal is to improve urban transport and additional services. But this must not come ahead of the two goals listed above — nor can it be achieved unless those are met first.

Models of success from other regions may offer illuminating analogies and contrasts with African cities, while exemplifying what leaders can achieve through coordinated and sustained action (box 5). Of course, political economy must be considered in designing and implementing policies. Leaders need to foresee policy impacts (opportunities, winners, and losers) and anticipate challenges to enforcement.

City growth will be central to development in Africa, as it has been elsewhere. By starting with reforms to land markets and regulations, then making early and coordinated infrastructure investments, governments can take control of urbanization and build more connected and productive African cities: cities that open their doors to the world.

# Annex: Coverage of African cities used in the analysis

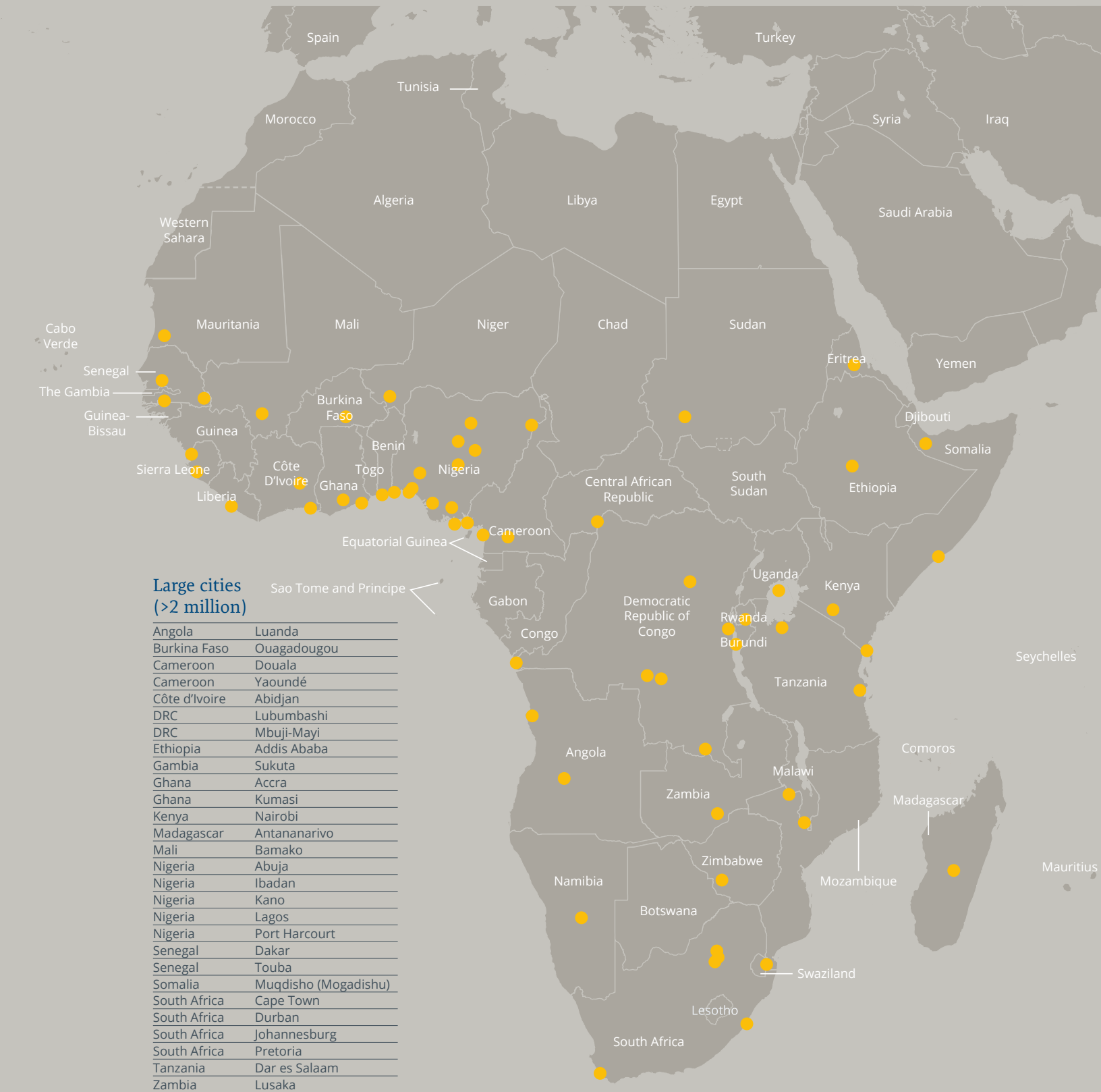
## Cities used in the analysis

### Small cities (<800,000)

| Country | City |
|---|---|
| Benin | Abomey-Calavi |
| Burundi | Bujumbura |
| CAR | Bangui |
| Côte d'Ivoire | Bouake |
| Namibia | Windhoek |
| Nigeria | Maiduguri |
| Nigeria | Nnewi |
| Somalia | Hargeysa |
| South Africa | Soshanguve |
| Sudan | Nyala |
| Zimbabwe | Bulawayo |

### Intermediate cities (800,000-2 million)

| | |
|---|---|
| Angola | Huambo |
| Congo | Pointe-Noire |
| DRC | Bukavu |
| DRC | Kananga |
| DRC | Kisangani |
| Eritrea | Asmara |
| Guinea | Conakry |
| Kenya | Mombasa |
| Liberia | Monrovia |
| Malawi | Blantyre-Limbe |
| Malawi | Lilongwe |
| Mauritania | Nouakchott |
| Mozambique | Maputo |
| Nigeria | Benin City |
| Nigeria | Ilorin |
| Nigeria | Jos |
| Nigeria | Kaduna |
| Nigeria | Niamey |
| Nigeria | Uyo |
| Rwanda | Kigali |
| Sierra Leone | Freetown |
| Tanzania | Mwanza |
| Togo | Lomé |
| Uganda | Kampala |
| Zimbabwe | Harare |




## Large cities (>2 million)

| | |
|---|---|
| Angola | Luanda |
| Burkina Faso | Ouagadougou |
| Cameroon | Douala |
| Cameroon | Yaoundé |
| Côte d'Ivoire | Abidjan |
| DRC | Lubumbashi |
| DRC | Mbuji-Mayi |
| Ethiopia | Addis Ababa |
| Gambia | Sukuta |
| Ghana | Accra |
| Ghana | Kumasi |
| Kenya | Nairobi |
| Madagascar | Antananarivo |
| Mali | Bamako |
| Nigeria | Abuja |
| Nigeria | Ibadan |
| Nigeria | Kano |
| Nigeria | Lagos |
| Nigeria | Port Harcourt |
| Senegal | Dakar |
| Senegal | Touba |
| Somalia | Muqdisho (Mogadishu) |
| South Africa | Cape Town |
| South Africa | Durban |
| South Africa | Johannesburg |
| South Africa | Pretoria |
| Tanzania | Dar es Salaam |
| Zambia | Lusaka |

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# Africa's Cities

## Opening Doors to the World

## Overview

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